



ECATS Post Kick Off Technical/Architecture Discussion

North Carolina

Department of Public Instruction

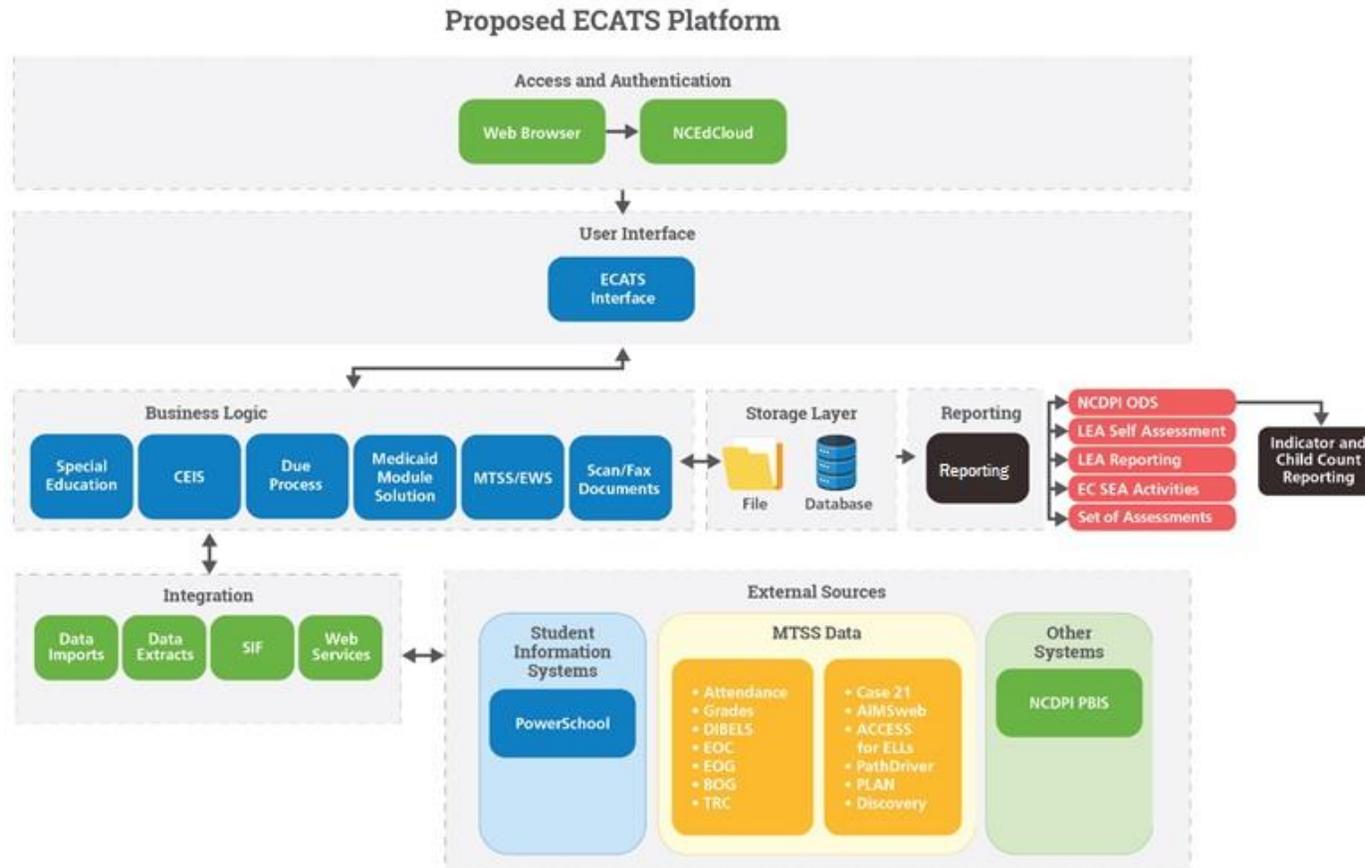
April 7, 2016

10:30 AM

Agenda

- Architecture
 - ECATS Application Architecture
 - State Level Site Control & Administration
 - ECATS Database Architecture
 - TASD (Technical Architecture Specification Document)
- Data Integration
- QA Process
- Application Security
- Hosting, Monitoring, Physical Security

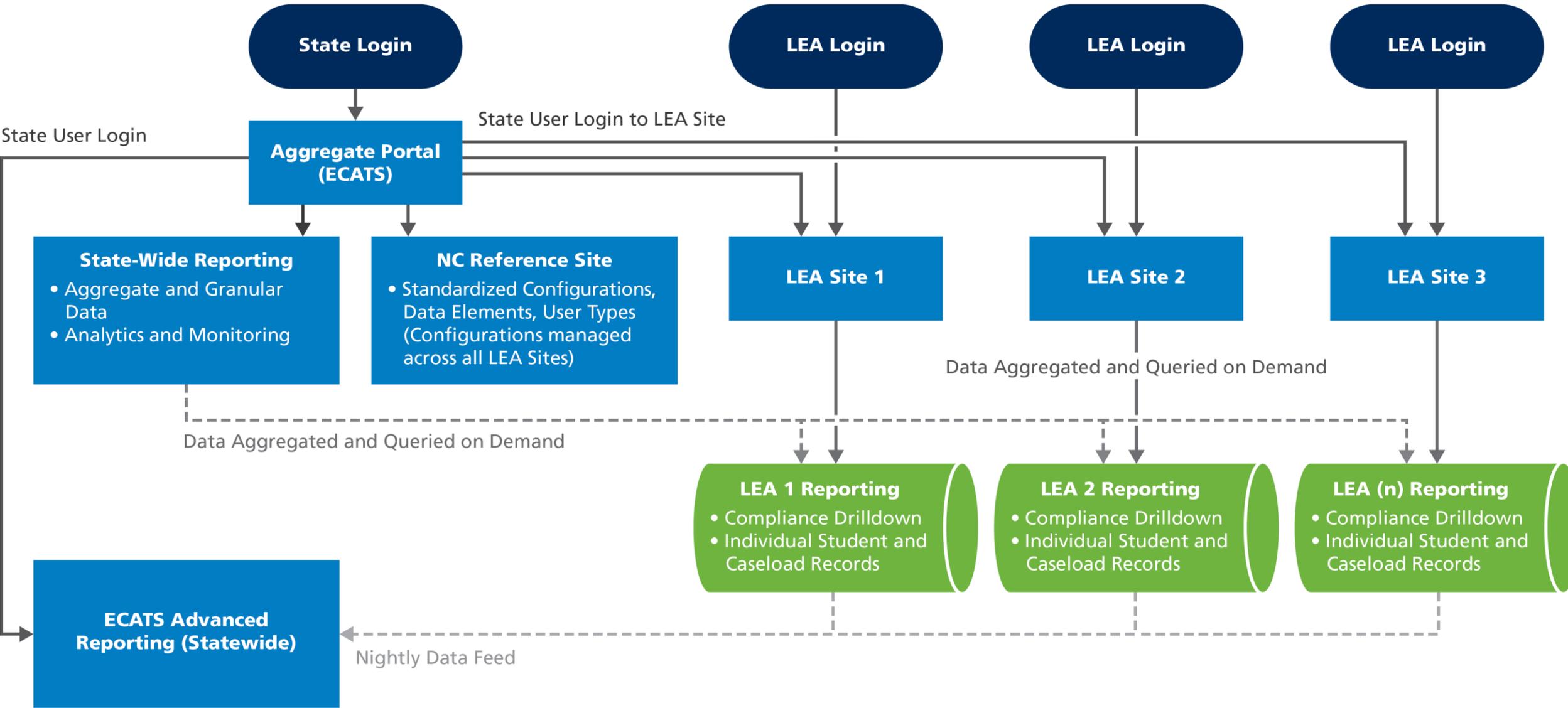
ECATS Application Architecture as Proposed



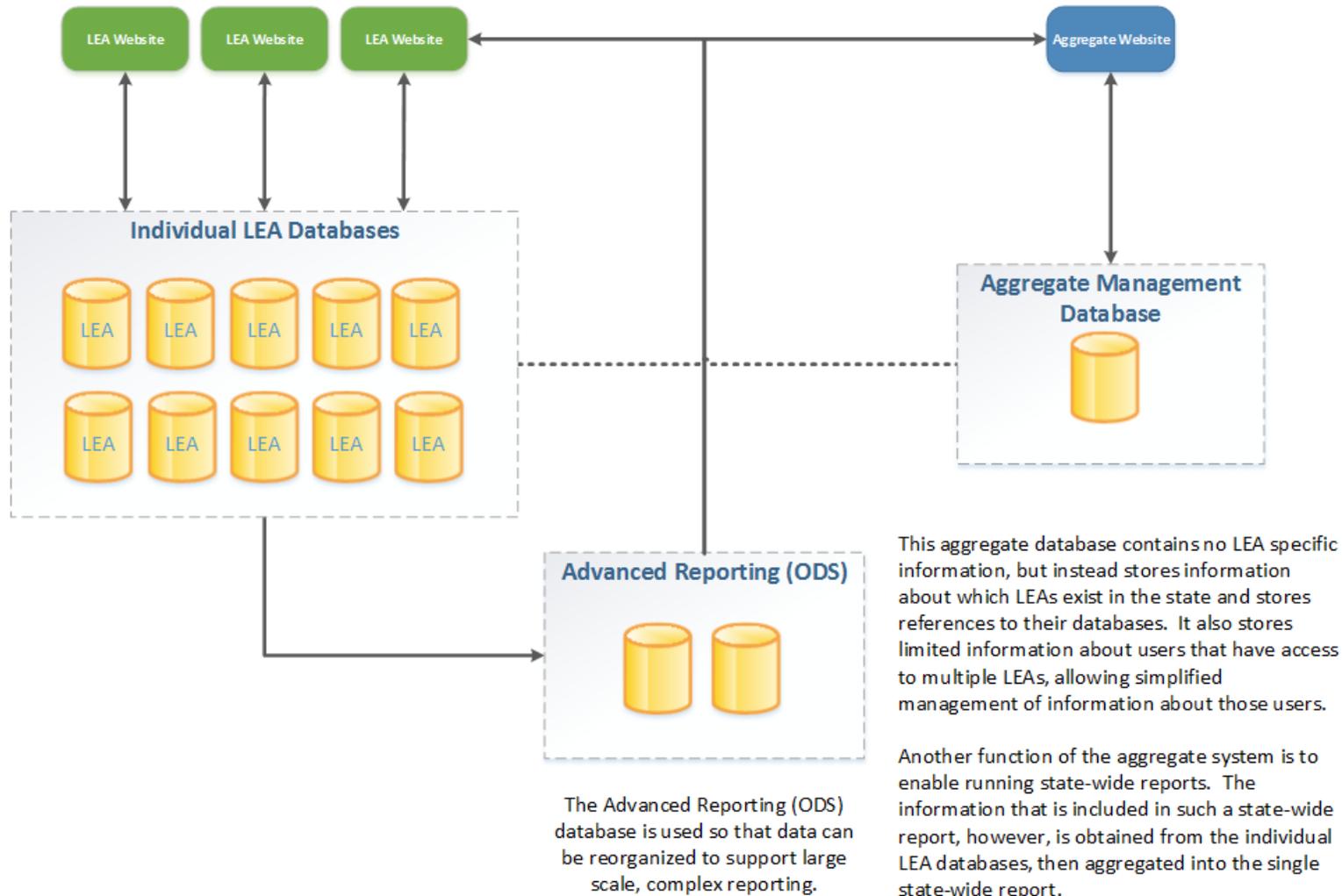
Multi-Tiered Application

- Authentication and authorization security layer. – NC EdCloud
- Standard and customizable ECATS user interface
- Individual business logic – modules
- Data integration with existing data sources via scheduled or near-real-time system
- Reporting solution

State Level Administration



ECATS Database Architecture



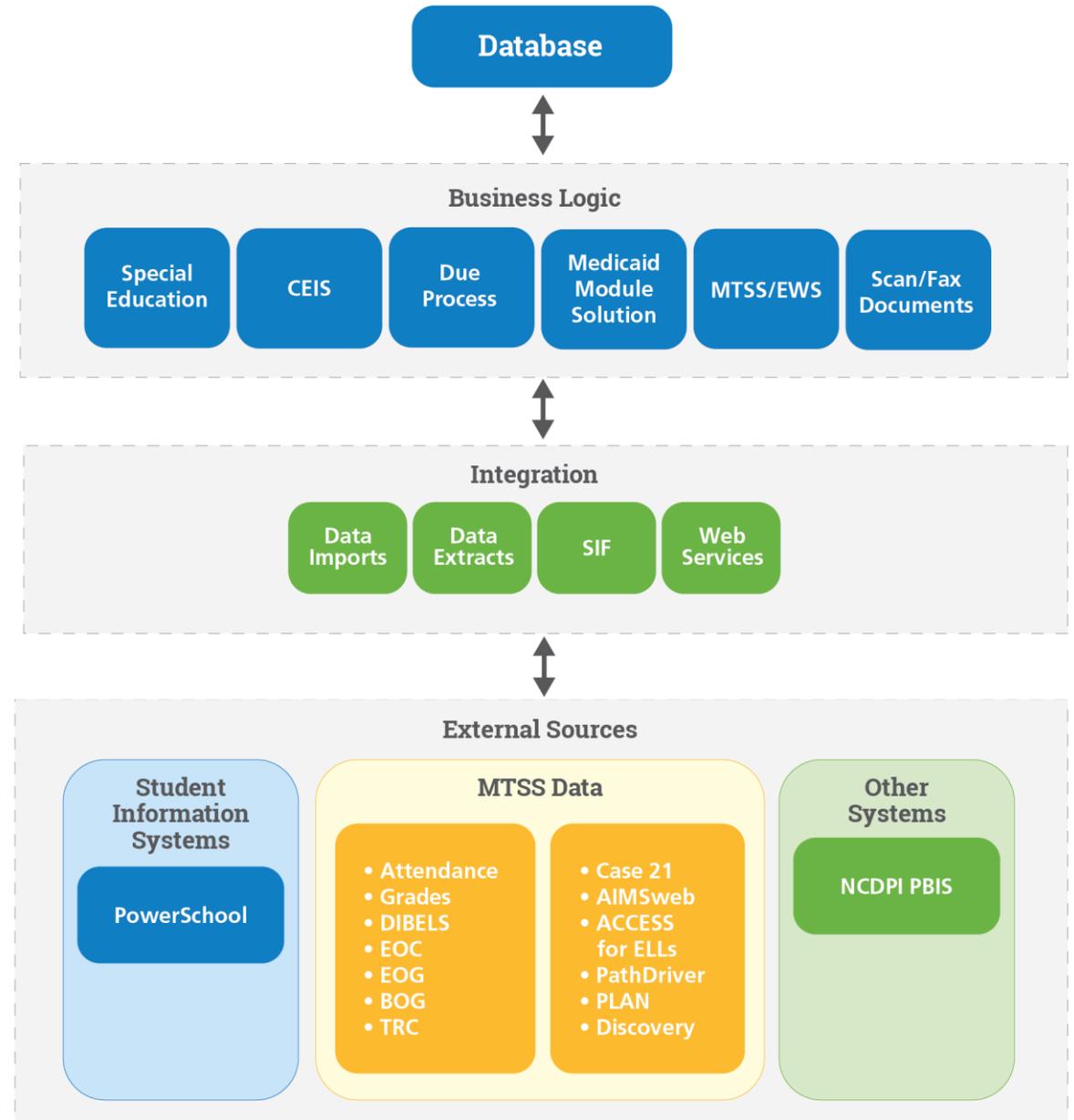
Data Integration

Import data each day from PowerSchool for NC students

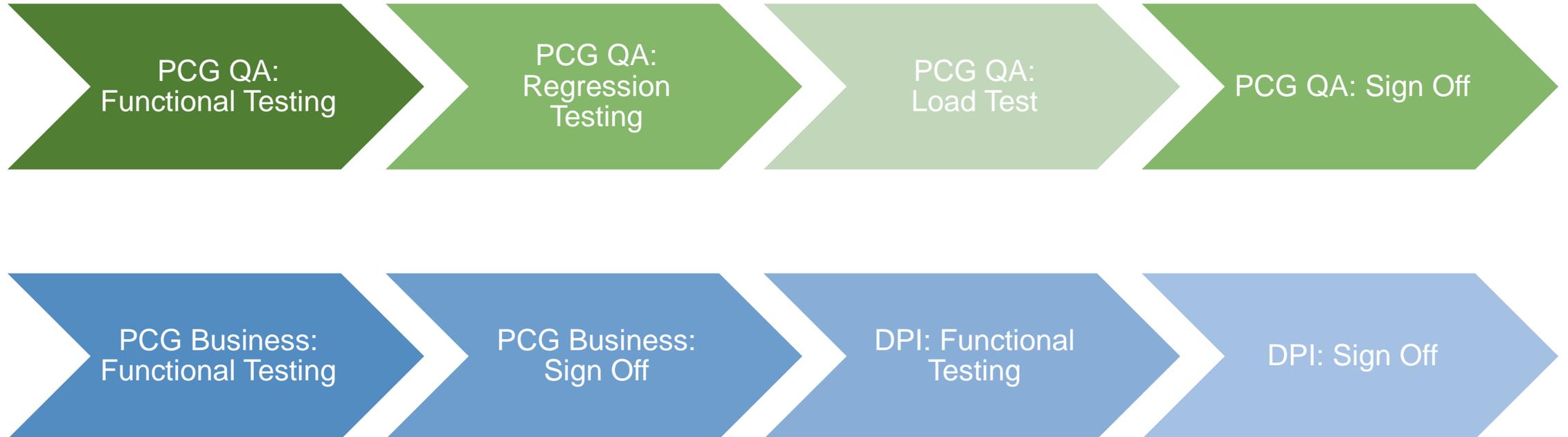
- Automated data import/export processes
- Nightly data feeds from PowerSchool
- System-generated data integration summary reports

Automatic import of key information

- Student demographics
- School assignment
- Parents
- Users
- Class rosters
- Attendance
- Grades



QA Process

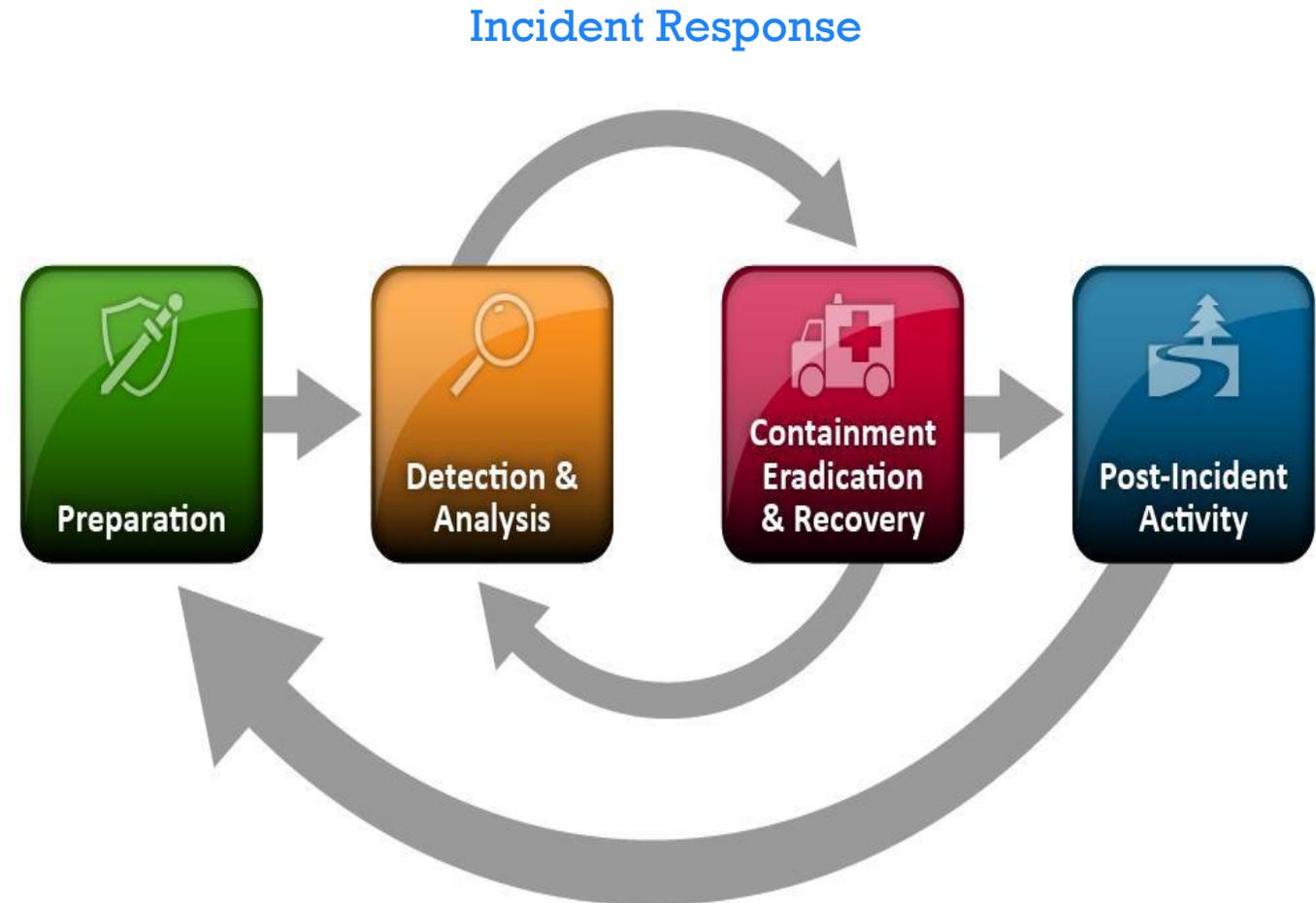


JIRA used for all defect tracking

Application Security

EdPlan Application Security Model

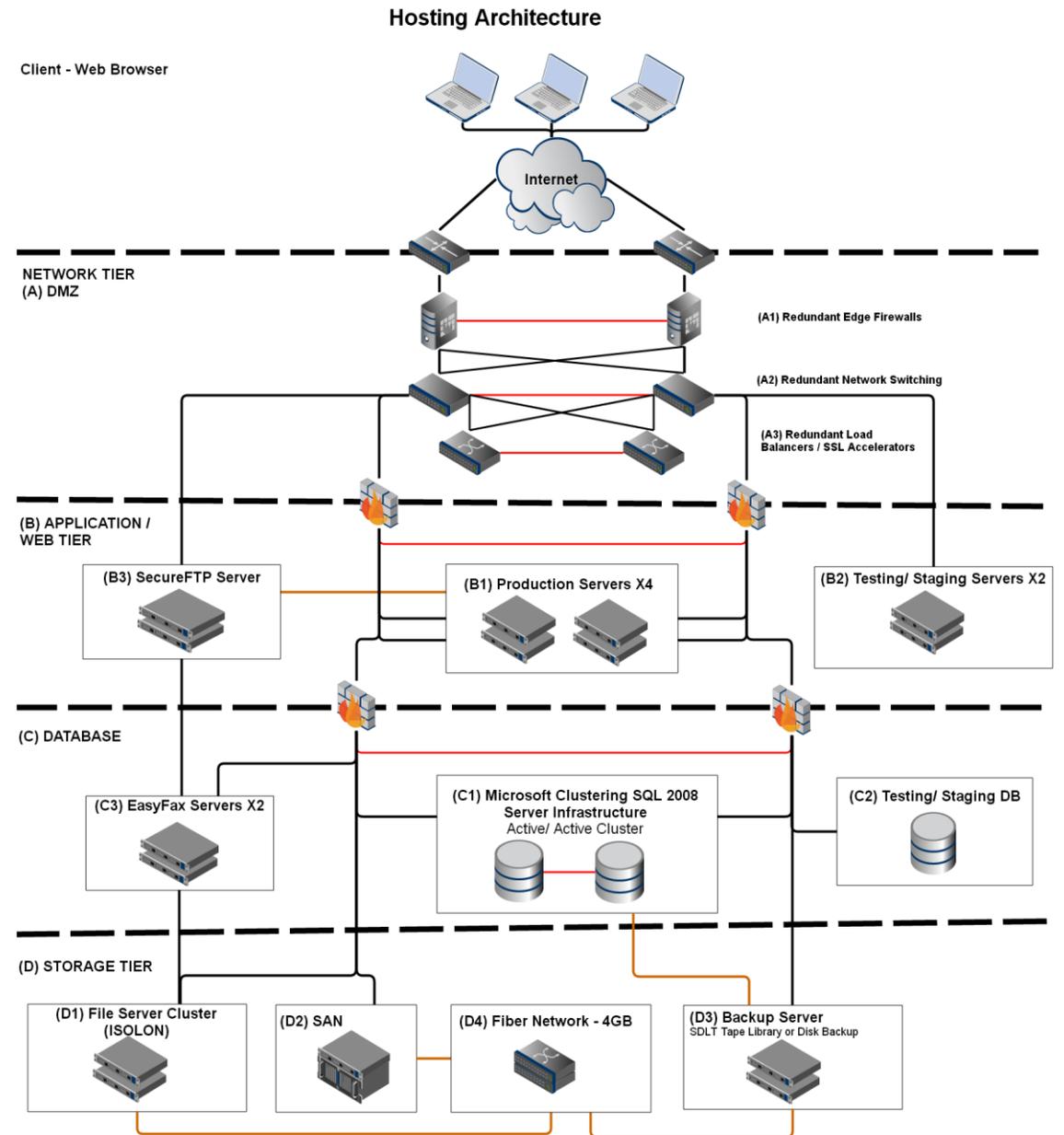
- Users are tracked using a unique session identifier after authentication
- Independent verification mechanisms are used to validate session records on each request
- Page and Section access are granted based upon the user's role
- Permissions are granted to perform specific actions based upon the user's role
- Annual penetration testing is performed on the application and infrastructure
- Internal Information Security Team
- Application Security, Infrastructure (SSL, SFTP, Redundant Firewalls), PCG Security Team



Hosting Architecture

Multi-Tiered, Fault-Tolerant Infrastructure

- All infrastructure uses clustered or fail-over hardware to prevent a single point of failure
- High availability database clusters for improved performance
- Storage Area Network for data storage speed and redundancy
- Hardware and software firewall and security layers.
- Backup architecture allowing for easy retrieval of data for disaster recovery



Monitoring

Orion

- Network Elements
- Firewalls
- Routers
- Hardware/Circuits

IDERA SQL Diagnostic Manager

- SQL Performance
- SQL Queries

Alert Site

- External Performance Monitoring and Availability

Custom Monitoring Scripts

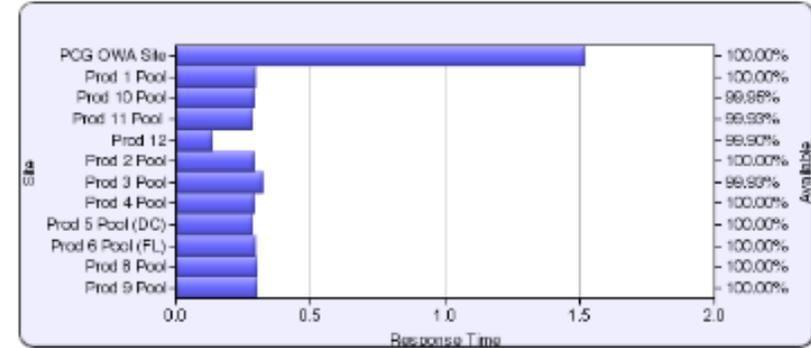
- Transaction Time
- Performance Metrics



Site Name: Multiple Sites/Servers
 Customer: Public Consulting Group, Inc.
 Report Name: All Sites Weekly Summary
 Locations: Atlanta, Los Angeles, Boston

Summary Statistics Report

From: 2016-03-07 00:00
 Thru: 2016-03-13 23:59



Sites										
Device	Type	# Checks	# Available	Available%	Response Time	Fullpage Response Time	Response#	Errors#	Warnings#	Alerts
POG OWA Site	Secure Web Site	668	668	100.00	1.5163	-	0	0	0	0
Prod 1 Pool	Secure Web Site	5719	5719	100.00	0.2958	-	0	1	0	0
Prod 10 Pool	Secure Web Site	5728	5725	99.95	0.2906	-	3	3	0	0
Prod 11 Pool	Secure Web Site	5727	5723	99.93	0.2839	-	4	2	0	0
Prod 12	Secure Web Site	1962	1960	99.90	0.1346	-	2	0	0	0
Prod 2 Pool	Secure Web Site	5732	5732	100.00	0.2925	-	0	0	0	0
Prod 3 Pool	Secure Web Site	5715	5711	99.93	0.3214	-	4	1	0	0
Prod 4 Pool	Secure Web Site	5732	5732	100.00	0.2879	-	0	0	0	0
Prod 5 Pool (DC)	Secure Web Site	5715	5715	100.00	0.2872	-	0	1	0	0
Prod 6 Pool (FL)	Secure Web Site	5728	5728	100.00	0.2970	-	0	3	0	0
Prod 8 Pool	Secure Web Site	5719	5719	100.00	0.2988	-	0	0	0	0
Prod 9 Pool	Secure Web Site	5728	5728	100.00	0.3015	-	0	2	0	0

Legend: ■ Error Detected ■ Warning Condition ■ Notification Issued

Locations	Network Providers
Atlanta, GA	Cogent, Tella, Sprint
Los Angeles, California	Level3 via BBNPlanet, Alternet (MCI)
Boston, Massachusetts	Cogent, AboveNet, Level3

Report Date/Time: 2016-03-14 02:19:28 GMT -5

Physical Security

Hosted at secure Tier 4 co-location

- Highly secure data center with limited controlled access

24x7x365 security guards

- Require check in and check out
- Biometric scanning for identification
- Maintain complete access logs
- Video surveillance of the premises, exterior perimeter fencing

Data transmission

- Via industry standard encryption (256-bit SSL or higher)

Disaster Recovery

Backups

- Virtual Machine
 - Daily or weekly backups.
- Database
 - Full daily backups
 - Hourly transaction-log backups
- A copy of the backup data exists in each of our two geographically dispersed data centers located in Boston and Austin

Recovery

- Recovery time \leq 24 hours
- Recovery point objective \leq 1 hour
- Disaster recovery exercise conducted annually



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